

App. No. 10/653,791  
Amendment

**REMARKS**

Reconsideration of the application in view of the above amendments and following remarks is respectfully requested. In the above amendment, claims 1, 17-21, 31-32 and 34 are currently being amended, claim 33 is currently being canceled without prejudice, and no claims are currently being added. Therefore, claims 1-7, 9-29, 31-32 and 34 are pending in the application.

Petition for Extension of Time

A Petition and Fee for a One-Month Extension of Time to respond is submitted herewith to extend the period for response to March 21, 2007.

Written Statement regarding Substance of 3/9/07 Telephone Interview per 37 CFR 1.133(b)

Applicant appreciates very much the opportunity to discuss the rejections in this application with Examiner Jason Repko in the telephone interview that occurred on March 9, 2007. In accordance with the requirements of 37 CFR 1.133(b), and the Manual of Patent Examining Procedure (MPEP) §713.04, Applicant provides the following written statement of the reasons presented at the interview as warranting favorable action.

Those participating in the interview were Examiner Repko and the undersigned attorney of record. No exhibits were shown or discussed. The claims that were discussed were claims 1 and 21. The prior art that was discussed was U.S. Patent Application Publication No. 2002/0015055 to Foran ("Foran").

The general thrust of Applicant's principal arguments that were discussed in the interview were as follows.

Applicant asserted that the Foran reference does not

disclose the concept of allowing subspaces to spatially overlap. The Examiner disagreed. It appeared that the Examiner was interpreting the word "subspaces" in the claim very broadly. Applicant asked the Examiner if amending the claim to further define subspaces would help. The Examiner indicated that such an amendment would help and suggested that the word "subspace" be defined as having boundaries and that the boundaries are allowed to spatially overlap one another. The Examiner indicated that such an amendment would overcome the Foran reference but that he would need to conduct a further search. Thus, an agreement was reached as to this amendment.

With respect to Paragraph 3 of latest Office Action stating that the specification does not reasonably provide enablement for hardware units, Applicant asserted that Applicant's specification discloses a graphics processor in full detail, as shown in FIGS. 6 to 8, and asserted that the description in the specification is sufficient to satisfy the enablement requirement. Applicant further asserted the belief that it is within the skill of a person of ordinary skill in the art to make the claimed hardware units based on the specification and drawings. The Examiner responded to these arguments by indicating that Applicant should make these assertions in the next response and that he will consider them.

During the discussion of the enablement issue the Examiner also questioned whether claim 1 is directed to non-statutory subject matter. Namely, the Examiner appeared to question whether claim 1 merely involved a transformation of data. No agreement was reached on this issue.

Regarding Paragraphs 5 and 6 of the latest Office Action regarding the non-statutory subject matter rejections, Applicant

asked the Examiner to clarify how he wants the claims amended. The Examiner indicated that he would prefer that the words "tangible computer-readable" be inserted before "storage medium" in claim 21. The Examiner indicated that the word "tangible" would take care of any non-statutory carrier wave situation.

#### Allowable Subject Matter

Applicant appreciates the Examiner indicating that claims 7, 31, 32 and 34 include limitations not found in the prior art of record. Applicant asserts that the lack of enablement rejections should be withdrawn as described below. As such, Applicant asserts that claims 7, 31, 32 and 34 include allowable subject matter.

Applicant has amended claims 31, 32 and 34 to place them each in independent form and to include the limitations of their respective base claims. As such, amended claims 31, 32 and 34 are in a condition for allowance.

Applicant has not amended claim 7 since it is dependent on claim 32, which is now independent.

#### Claim Rejections under 35 U.S.C. § 112

The Examiner rejected claims 1-7, 9-18, 25-29 and 31-34 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for software units, allegedly does not reasonably provide enablement for hardware units. Applicant respectfully traverses these rejections.

As explained in the March 9, 2007, telephone interview, Applicant asserts that the specification of the present invention discloses a graphics processor in full detail, as shown in FIGS. 6 to 8, and that the description in the specification is sufficient to satisfy the enablement requirement. Namely,

Applicant asserts that it is within the skill of a person of ordinary skill in the art to make the claimed hardware units based on the specification and drawings without undue experimentation. As such, the rejections should be withdrawn.

Furthermore, Applicant asserts that according to the Manual of Patent Examining Procedure (MPEP) the Examiner's rejections are legally inadequate. Namely, Section 2164.01 of the MPEP indicates that the test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without "undue experimentation."

With respect to "undue experimentation," Section 2164.01(a) of the MPEP states the following:

"There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is 'undue.' These factors include, but are not limited to:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

. . . . .

It is improper to conclude that a disclosure is not enabling based on an analysis of only one of the above factors while ignoring one or more of the others. The examiner's analysis must consider all the evidence

related to each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole.

. . . . .

The determination that 'undue experimentation' would have been needed to make and use the claimed invention is not a single, simple factual determination. Rather, it is a conclusion reached by weighing all the above noted factual considerations."

(MPEP 2164.01(a) Undue Experimentation Factors)(emphasis added).

The Examiner's analysis in the office action does not weigh all the above noted factual considerations. As such, the Examiner's analysis does not appear to be in compliance with this section of the MPEP, which is another reason the rejections should be withdrawn.

#### Claim Rejections under 35 U.S.C. § 101

The Examiner rejected claims 21-24 under 35 U.S.C. 101 because the claimed invention is allegedly directed to non-statutory subject matter. Applicant respectfully traverses this rejection.

In accordance with the preference indicated by the Examiner during the March 9, 2007, telephone interview, Applicant has amended claim 21 by inserting the words "tangible computer-readable" before "storage medium". It is noted that because claims 22-24 refer to "[t]he storage medium of Claim 21", it is believed that they do not need to be amended.

As such, the rejections should be withdrawn.

Claim Rejections under 35 U.S.C. § 103

Claims 1-6 and 20-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2002/0015055 to Foran in view of U.S. Patent No. 6,016,150 to Lengyel et al. Applicant respectfully traverses these rejections.

As discussed above, it was agreed during the March 9, 2007, telephone interview that an amendment that defined the word "subspace" as having boundaries and that specified the boundaries are allowed to spatially overlap one another would overcome the Foran reference. As such, in an effort to advance this application to allowance, Applicant has amended claim 1 to recite "wherein each of the three-dimensional subspaces is defined by boundaries and the boundaries of the three-dimensional subspaces are allowed to spatially overlap one another". Independent claims 20 and 21 have been amended in a similar manner. This amendment is supported by at least Applicant's FIGS. 13A, 13B, 18A and 18B, which show the boundaries of subspaces spatially overlapping one another.

Therefore, because it was agreed during the March 9, 2007, telephone interview that this amendment would overcome Foran, Applicant asserts that the rejections of independent claims 1, 20 and 21 should be withdrawn. Furthermore, the rejections of the dependent claims should also be withdrawn for at least these same reasons due to their dependency on their respective independent claim.

Claims 9-14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2002/0015055 to Foran in view of U.S. Patent No. 6,016,150 to Lengyel et al. in view of Kwan Liu Ma, James S. Painter, Charles

D. Hansen, Michael F. Krogh, "A Data Distributed, Parallel Algorithm for Ray-Traced Volume Rendering," October 25, 1993, Proceedings of the 1993 Symposium on Parallel Rendering, p. 15-22 (Ma et al.). Applicant respectfully traverses these rejections.

Applicant has amended independent claims 17 and 18 in a manner similar to amended independent claim 1. Again, it was agreed that this amendment would overcome Foran, which means the rejections of independent claims 17 and 18 should be withdrawn. Furthermore, the rejections of the dependent claims should also be withdrawn for at least these same reasons due to their dependency on their respective independent claim.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2002/0015055 to Foran in view of U.S. Patent No. 6,016,150 to Lengyel et al. in view of Kwan Liu Ma, James S. Painter, Charles D. Hansen, Michael F. Krogh, "A Data Distributed, Parallel Algorithm for Ray-Traced Volume Rendering," October 25, 1993, Proceedings of the 1993 Symposium on Parallel Rendering, p. 15-22 (Ma et al.) and in further view of Jerrell Watts, Stephen Taylor, "A Practical Approach to Dynamic Load Balancing," March 1998, IEEE Transactions on Parallel and Distributed Systems, v. 9 n. 3, p. 235-248 (Watts et al.). Applicant respectfully traverses these rejections.

The rejections of dependent claims 15 and 16 should also be withdrawn for at least the same reasons as amended independent claim 1 due to their dependency thereon.

Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2002/0015055 to Foran in view of U.S. Patent No. 6,016,150 to Lengyel et al. in view of U.S. Patent No. 5,986,659 to Gallery et al. Applicant respectfully traverses these rejections.

The rejections of dependent claims 28 and 29 should also be withdrawn for at least the same reasons as amended independent claim 1 due to their dependency thereon.

Claims 19 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2002/0015055 to Foran in view of U.S. Patent No. 5,867,166 to Myhrvold et al. Applicant respectfully traverses these rejections.

Applicant has amended independent claim 19 in a manner similar to amended independent claim 1. As such, the rejection of independent claim 19 should be withdrawn for at least the same reasons described above for amended independent claim 1.

Applicant has canceled claim 33 without prejudice. As such, the rejection of that claim is now moot.

#### Fees Believed to be Due

A petition and fee is included for a One-Month Extension of Time to respond.

Fees have previously been paid in this application for a total of 32 claims with 7 claims being independent claims. The above amendment has resulted in there now being a total of 31 claims with 9 claims being independent claims. Thus, a fee is believed to be due for 2 extra independent claims.



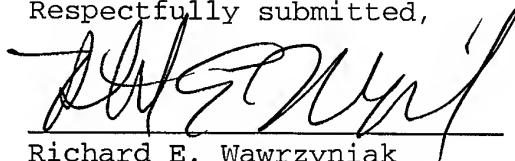
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**CONCLUSION**

In view of the above, Applicant submits that the pending claims are in condition for allowance. Should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone Richard E. Wawrzyniak at (858)552-1311 so that such issues may be resolved as expeditiously as possible.

Date: 3/20/07

Respectfully submitted,



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